CALIFORNIA BAY-DELTA AUTHORITY

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Agenda Item: 6B
Meeting Date: June 15, 2006

CALIFORNIA BAY-DELTA AUTHORITY

CONSIDERATION OF A RESOLUTION APPROVING SCIENCE PROGRAM PROPOSAL SOLICITATION PACKAGE, INCLUDING THE TOPICS, PROCESS, AND FUNDING ALLOCATION, AND AUTHORIZING THE DIRECTOR, OR DESIGNEE, TO PROCEED WITH THE PSP

Summary: The CALFED Science Program convened a Selection Panel that recommends four main topics as the focus for the Science Program 2006 Focused Proposal Solicitation Package (PSP). The Selection Panel is recommending the Authority approve the topics and remaining PSP process.

Recommended Action: The Authority adopt the attached Resolution 06-06-04, which would approve the Science Program's 2006 Focused PSP and authorize the program to proceed with the solicitation process.

Background

Under the California Bay-Delta Record of Decision (ROD), the Science Program is directed to establish unbiased and authoritative knowledge directly relevant to CALFED actions. There are four broad objectives for the Science Program that guide the development of topics for solicitations for proposals to be funded by the CALFED Program:

1. Provide a comprehensive and integrated scientific context for CALFED activities.
2. Ensure continuous advancement of credible scientific information that will guide regulatory decisions, water project operations, and restoration programs.
3. Establish a framework to identify and articulate areas of scientific uncertainty relevant to key issues both before and after actions.
4. Develop strategies to reduce uncertainties and track performance and progress toward CALFED goals.

The goal of this PSP is not to create knowledge for its own sake nor is it to fund routine monitoring or mandated projects. The goal is to invest in knowledge that will fundamentally advance our understanding of the complex environments/systems within the CALFED jurisdiction to aid policy makers and managers.

Last year at this time, due to budget constraints, the Science Program decided to reduce the funding for its call for proposals (PSP) from $18 million to approximately $6 million to reserve funding and ensure the continuation of the granting program for the next few years until new funding was found for the program. Additionally, to maximize benefit from the limited funds available, the decision was made to focus the next solicitation on specific management research questions that also support the broader CALFED Program objectives. A Selection Panel was convened to summarize current and future management needs, prioritize the issues, and articulate these priority information gaps as appropriate science questions (See Attachment 1 for list of selection panel members.) Comprised of agency representatives, stakeholders, and independent scientists, the panel met on May 24, 2006 and forwarded four priority topics as the focus of the upcoming Focused PSP, with roughly $1-2 million allocated per topic. In formulating the priority topics, the Selection Panel utilized information from recent public events and processes, and from priority management issues solicited from implementing agencies and stakeholder groups. Some of these efforts included:

- Pelagic Organism Decline (POD) Report, Review, and Responses
- Interagency Ecological Program (IEP) Delta Smelt Review
- Environmental Water Account (EWA) Reviews
- Operational Criteria and Plan (OCAP), Biological Opinion, and Review
- Mercury Workshop
- Delta Science Panel experts
- Delta Risk Management Strategy (DRMS) experts
- Water Quality experts
- Agriculture experts
- Others

Priority issues were considered in the context of currently funded ongoing research, such as the Interagency Ecological Program (IEP) Pelagic Organism Decline work, the Ecosystem Restoration Program's assisting farmers in integrating agricultural activities with ecosystem restoration PSP, and other agency efforts focused on addressing management needs, such as the Delta Risk Management Strategy (DRMS). An additional consideration was the minimum two- to three-year time frame for most research projects to yield useful products. Integration and synthesis of available information, models, and interdisciplinary approaches were stressed. With the final four priority topics, the Selection Panel identified some of the important research areas for investment that will decrease uncertainty in making decisions relevant to management/policy actions.

The final priority topics are:
1. Environmental Water
2. Aquatic Invasive (Exotic) Species

3. Trends and Patterns of Populations and System Response to a Changing Environment
4. Habitat Availability and Response to Change

All proposals must address at least one of the following topics and one or more of the questions and associated key study components within the selected topic.

For each topic the panel articulated the following:

1) the need/importance and relevance for the research tied to specific CALFED programs so that outcomes from the research can be directly tied to a management/policy need.

2) question(s) that define the unknowns that the research needs to clarify/answer as it relates to the need/importance as stated above.

3) key study components that clarify the type of research efforts expected by the researcher(s) that fit into the broader efforts by CALFED agencies.

This detailed information for each topic is presented in Attachment 2.

These topics were posted on the Science Program web site for public comment on June 8, 2006. Any comments received by June 13, 2006 will be consolidated and presented to the Authority at the June 15, 2006 meeting.

Solicitation Process:

The process outlined for this solicitation is slightly revised from the previous 2004 Science Program PSP. Rather than meeting after all proposals have been received, the Selection Panel met prior to release of the solicitation to determine the priority focused topics. Proposals received in response to the solicitation will undergo administrative and external technical review. The Technical Synthesis Panel will consolidate these comments and rate the proposals. The highest rated proposals within each priority topic area (with a total of approximately $1 -2 million per topic area; total award across topic areas of $6 million) will be recommended for funding to the Authority for at their December 2006 meeting.

The solicitation package will be distributed through the Science Program website (http://science.calwater.ca.gov), as well as broad outreach throughout the scientific community. Eligible applicants will include the following: 1) local agencies; 2) federal agencies; 4) tribes; 5) joint powers authorities; 6) educational institutions; and 7) nonprofit organizations.

Submitted proposals will be reviewed using a multi-step evaluation process beginning with an administrative review by Science Program staff, which will

provide information to the Selection Panel on the past performance of CALFED Program's funded projects.

The process continues as each proposal is then reviewed by three external independent science experts selected based on their expertise in the specific subject area of the proposal. These reviews are critical and provide the Science Program with the precise information needed to make a good decision on the quality and probability of success of a specific proposal. The reviewers will evaluate submissions using a set of criteria that combine classic scientific review questions and elements designed by the Science Program to address common issues (Attachment 3). The subject experts will also make overall recommendations to a Technical Synthesis Panel as to whether proposals are excellent, very good, good, fair, or poor, and explain their recommendations.

The next step is to consolidate the results of all the individual external reviews into a single set of recommendations. A Technical Synthesis Panel comprised of members of the Independents Science Board and individual subject reviewers will evaluate and provide unbiased ratings of each proposal's technical quality based on the individual technical reviews. The Lead Scientist, or designee, will serve as a non-voting director for the Technical Synthesis Panel with primary responsibility for assuring that the discussion is balanced, fair and comprehensive.

The highest rated proposals within each priority topic area (with a total of approximately $1 -2 million per topic area; total award across the four topic areas of $6 million) will be recommended for funding to the Authority at their December 2006 meeting.

Anticipated Schedule:

The anticipated schedule for this process is as follows:

May 24, 2006	Topic Selection Panel
June 15, 2006	Priority topics recommendations presented to the Authority
June 30, 2006	Proposal Solicitation Package open
August 31, 2006	Proposal Solicitation Package closed
September 1-15, 2006	Administrative review of Proposals
Sept 15 – Nov 15, 2006	External Scientific Review of Proposals
Nov 15-30, 2006	Technical Synthesis Panel Review of Proposals
December 11, 2006	Recommendations presented to the Authority
February – March 2007	Anticipated starting date for funded proposals

List of Attachments

Attachment 1 – List of Selection Panel members
Attachment 2 – Topic Recommendations
Attachment 3 – External Scientific Review Evaluation Criteria
Resolution 06-06-04

Contact

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Deputy Director for Science
California Bay-Delta Authority

Agenda Item: 6B **ATTACHMENT 1**
Meeting Date: June 15, 2006

2006 SCIENCE PROGRAM PSP SELECTION PANEL

Last Name	First Name	Affiliation/Location
Aceituno	Mike	National Oceanic and Atmospheric Administration
Bobker	Gary	Bay Institute
Chotkowski	Mike	US Bureau of Reclamation
Goodwin	Peter	University of Idaho
Harlow	Dave	United States Fish and Wildlife Service
Herrgesell	Perry	Department of Fish and Game
Johns	Jerry	Department of Water Resources
Kuwabara	Jim	United States Geological Survey
Meyer	Judy	University of Georgia
Moore	Johnnie	California Bay-Delta Authority
Ott	Ron	California Bay-Delta Authority
Patten	Duncan	Montana State University
Quinn	Tim	Metropolitan Water District
Rosekrans	Spreck	Environmental Defense
Rutherford	Ed	University of Michigan
Shaffer	Steve	California Department of Food and Agriculture

SELECTION PANEL MEETING RESULTS
2006 SCIENCE PROGRAM PROPOSAL SOLICITATION PACKAGE (PSP)

The Selection Panel has decided to allocate $1-2 million of the 2006 PSP ($6 million total) to each of the below four topics. For each topic the panel has articulated the following:

1) the need/importance and relevance for the research tied to specific CALFED programs so that outcomes from the research can be directly tied to a management/policy need.

2) question(s) that define the unknowns that the research needs to clarify/answer as it relates to the need/importance as stated above.

3) key study components that clarify the type of research efforts expected by the researcher(s) that fit into the broader efforts by CALFED agencies.

All proposals must address at least one of the following topics and one or more of the questions and associated key study components within the selected topic.

Topic 1: Environmental Water

Need**:**

To effectively allocate water to protect and recover at risk fish species through both prescriptive standards and flexible, adaptive programs by managing water projects in the delta and upstream watershed in a way that also provides reliable water supply and water quality.

Questions to be addressed by the research:

- How effective has previous use of discretionary environmental water (i.e. Environmental Water Account and CVPIA (b)(1) and (b)(2)) been for protection and recovery of at-risk fish species of the Bay-Delta estuary?
- How could existing discretionary environmental water supplies be utilized to more effectively protect and recover at-risk fish species?
- What is the relative importance of various key factors such as fish entrainment, delta inflow (overall or from specific sources such as Sacramento or San Joaquin Rivers), delta outflow, exports, E/I ratio, channel geometry, invasive species, water quality, temperature, turbidity, toxicants, and others in determining how environmental water of all types should be utilized? What other factors could be considered and what would their relative importance be? Is Delta inflow a more important factor in the South or the North Delta in determining how environmental water should be utilized?
- What effect could a different amount (greater or smaller) of environmental water have on fisheries?

- What alternative or additional ways to manage water would provide fish protection benefits? How would the benefits of those actions compare to current benefits of environmental water use?

Key Components:

- An analysis of the effects of the existing EWA and (b)(2) using modeling and analytical approaches;
- An examination of the amount of environmental water use from (b)(2) and EWA that is needed to show a measurable effect on at-risk fish populations;
- An analysis to determine the most effective way to use environmental water to provide the largest benefits to at-risk fish populations, including an analysis of the most important factors that should be considered in managing environmental water use;
- A study to determine what actions, including environmental water use, could be taken to affect entrainment or migratory movement of fish away from the pumps.

Topic 2: Aquatic Invasive (Exotic) Species

Need**:**

Aquatic invasive species have an impact on at-risk species, water quality, and Delta ecosystems that can severely limit current and future management options.

Questions to be addressed by the research:

- How will aquatic invasive species affect future Delta environmental conditions and what is their impact on the ability to achieve potential desired future conditions in the Delta?
- What are the key factors allowing successful establishment/distribution/survival/control of invasive species?
- What will the response of invasives be to possible future conditions?
- What are some likely future invasives and can actions be taken to reduce the introduction and effects of these invasives?
- How might management options alter likelihood of invasibility?
- To what extent do invasives limit options for managing the Delta?

Key Components:

- The development and application of scenarios and models that could be used to predict successful establishment of invasives under a host of future scenarios including different water management regimes, climate change, land use change, catastrophic events, etc;
- An exploration of invasive control measures or incentive programs successfully used elsewhere;
- Justification of choice of species or group of species in terms of their impact on the Delta ecosystem. Factors to consider:
    - Abiotic: temperature, salinity, depth, flow, turbidity, contaminants, etc.

- Biotic: natural population cycles, response to other invasives, competitors, predators, etc.

- Example invasives of concern:

Egeria
Water hyacinth
Corbula amurensis
Corbicula
New Zealand mudsnail
Planktonic invaders
Northern Pike

Topic 3: Trends and Patterns of Populations and System Response to a Changing Environment

External and internal drivers and environmental changes influence populations of key species such as Delta smelt, important structures such as levees, and system water operations. For example, climate change is expected to not only change the hydrology of watershed rivers, but also raise ocean levels. These two factors alone may alter the salinity balance of the delta. The pattern of how species, structures and system water operations might respond to these changes is not well understood in that response may be stepwise, eventually reaching thresholds that cause potential catastrophic changes, or gradual with concomitant gradual or linear responses of the attribute of concern.

Need**:**

To better understand, through use and synthesis of existing information, present and future dynamics of populations of key species, and/or response of structures and system operations to anticipated environmental changes which may be a function of natural or human caused phenomena.

Questions to be addressed by the research:

- What are the driver/response relationships of key species, and/or structures (e.g. levees) or system water operations? How are these relationships best described (e.g. continuous, stepwise, other)?
- What are the implications for management strategies of the type of response of species or structures?
- What models are needed to describe these driver/response relationships?

Key Components anticipated to be used in developing a proposal to address the need and questions:

- Response variable selection (e.g. species, structure or operations) and justification;
- Driver (environmental variables that may change and influence the response variable) selection and justification;
- Approach (methods) to determine driver/response relationships;
- Application to selected geographic areas in the Bay-Delta region;
- Model development and management implications;
- Demonstration of heavy use and synthesis of existing information;

Topic 4: Habitat Availability and Response to Change

Need**:**
Habitat availability for key Delta species and communities will change as a result of future changes in Delta configuration and use. Long-term Delta planning requires a better understanding of the effects of anticipated changes (climate, population growth, resource use) and unanticipated changes (earthquakes) on habitats and communities of key species and the potential for remedial action.

Questions to be addressed by the research:

- How will the extent and quality of Delta habitat for key species be affected by a variety of future scenarios such as population growth, invasive species, climate change, sea level rise, subsidence, and earthquakes?
- How will future scenarios affect abiotic and biotic drivers and how will these drivers, in turn, affect key species at different geographic and temporal scales? How will key species respond to these changes?
- How can habitat requirements continue to be met following changes in Delta configuration and use?

Key Components:

- An inventory and analysis of current habitat extent and condition, and spatially explicit data on species relative abundance and demographic characteristics;
- The development and use of spatially-explicit models and databases to analyze and map the potential effects of anticipated stressors on existing habitats;
- The development and use of population models to evaluate effects of changes in habitat on demographic characteristics of key species such as fecundity, growth, survival, abundance, etc;
- Factors/drivers to consider:
    - Abiotic: temperature, salinity, depth, hydrologic regimes, turbidity, contaminants, etc.
    - Biotic: natural population cycles, response to invasives, competitors, predators, lower trophic levels,
    - How future scenarios of human population growth, resource use, climate change, earthquakes etc. will affect abiotic and biotic factors.

External Scientific Review Evaluation Criteria

Goals – Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Justification – Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Approach – Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision makers?

Feasibility – Is the approach fully documented and technically feasible? What is likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Products – Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Capabilities – What is the track record of authors in terms of past work? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

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RESOLUTION 06-06-04

APPROVING SCIENCE PROGRAM PROPOSAL SOLICITATION PACKAGE, INCLUDING THE TOPICS, PROCESS AND FUNDING ALLOCATION, AND AUTHORIZING THE DIRECTOR, OR DESIGNEE, TO PROCEED WITH THE PSP

WHEREAS, the CALFED Science Program Proposal Solicitation Package (PSP) is a key element to providing CALFED agencies and stakeholder community with priority information needed to support program-wide management; and

WHEREAS, the topics were reviewed and commented on through a public comment process available on the CALFED Science Program website; and

WHEREAS, the topics and fund allocations underwent a comprehensive selection and public review process resulting in topics that are highly relevant to CALFED needs;

NOW, THEREFORE, BE IT RESOLVED that the California Bay-Delta Authority approves the Science Program PSP, including topics, process and funding allocation, and authorizing the Director, or designee, to proceed with the PSP.

CERTIFICATION
The undersigned Assistant to the California Bay-Delta Authority does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the Authority held on June 15, 2006.

Dated:_____

_____
Julie E. Alvis
Assistant to the California Bay-Delta Authority